

Appl. No. 09/587,103
Amndt. dated September 15, 2003
Reply to Office Action of April 14, 2003

Listing of Claims:

Claim 1 (currently amended): A process for producing high purity isopropyl alcohol comprising the steps of:

- (a) feeding a feed stream consisting essentially of at least 99.9 wt.% isopropyl alcohol containing 200 to 500 ppm organic impurities and having a moisture content of 100 ppm or less into a separation column;
- (b) separating said ~~isopropyl alcohol~~ feed stream into an overhead stream, containing increased concentrations of components having a boiling point less than isopropyl alcohol, taken overhead from said separation column and a bottoms stream, containing increased concentrations of components having a boiling point greater than isopropyl alcohol, taken as bottoms from said separation column, wherein any isopropyl alcohol in said overhead stream and said bottoms stream is not high purity isopropyl alcohol; and
- (c) removing said high purity isopropyl alcohol ^{as a vapor side stream} at a point:
- (i) below where said feed stream enters said separation column but above said bottoms stream, or
- (ii) above where said feed stream enters said separation column but below said overhead stream,
- wherein said high purity isopropyl alcohol has a metals content of less than about 1 ppb and a water content of less than about 100 ppm.

Claim 2 (original): The process of claim 1, further comprising the step of passing said high purity isopropyl alcohol through a filter after removing said high purity isopropyl alcohol from said separation column, wherein said filter is selected from the group consisting of: a membrane, a microfiltration cartridge, an ultra-filtration device, and mixtures thereof.

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Claim 3 (original): The process of claim 2, wherein said filter is a membrane selected from the group consisting of: ceramic membranes, polymeric membranes, metallic membranes, and mixtures thereof.

Claim 4 (original): The process of claim 1, ^{or 2} further comprising the step of passing said high purity isopropyl alcohol through an ion exchange resin, thereby forming an ultra-high purity isopropyl alcohol having less than about 100 ppt of any metal impurity.

Claim 5 (original): The process of claim 4, wherein said ion exchange resin is at least one resin selected from the group consisting of: a cationic resin, an anionic resin, and mixtures thereof.

Claim 6 (original): The process of claim 4, further comprising the step of passing said ultra-high purity isopropyl alcohol through a filter, wherein said filter is selected from the group consisting of: a membrane, a microfiltration cartridge, an ultra-filtration device, and mixtures thereof.

Claim 7 (original): The process of claim 6, wherein said filter is a membrane selected from the group consisting of ceramic membranes, polymeric membranes, metallic membranes, and mixtures thereof.

Claim 8 (original): The process of claim 1, wherein said separation column is a distillation column.

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Claim 9 (previously presented): The process of claim 8, wherein said overhead stream comprises about 5 to 30 wt.% of said feed stream and said bottoms stream comprises about 5 to 30 wt.% of said feed stream.

Claim 10 (previously presented): The process of claim 1, wherein said at least 99.9 wt.% isopropyl alcohol is produced by a method comprising the step of distilling an isopropyl alcohol solution that contains no more than about 14 wt.% water using a ternary azeotrope.

Claims 11-20 (canceled)